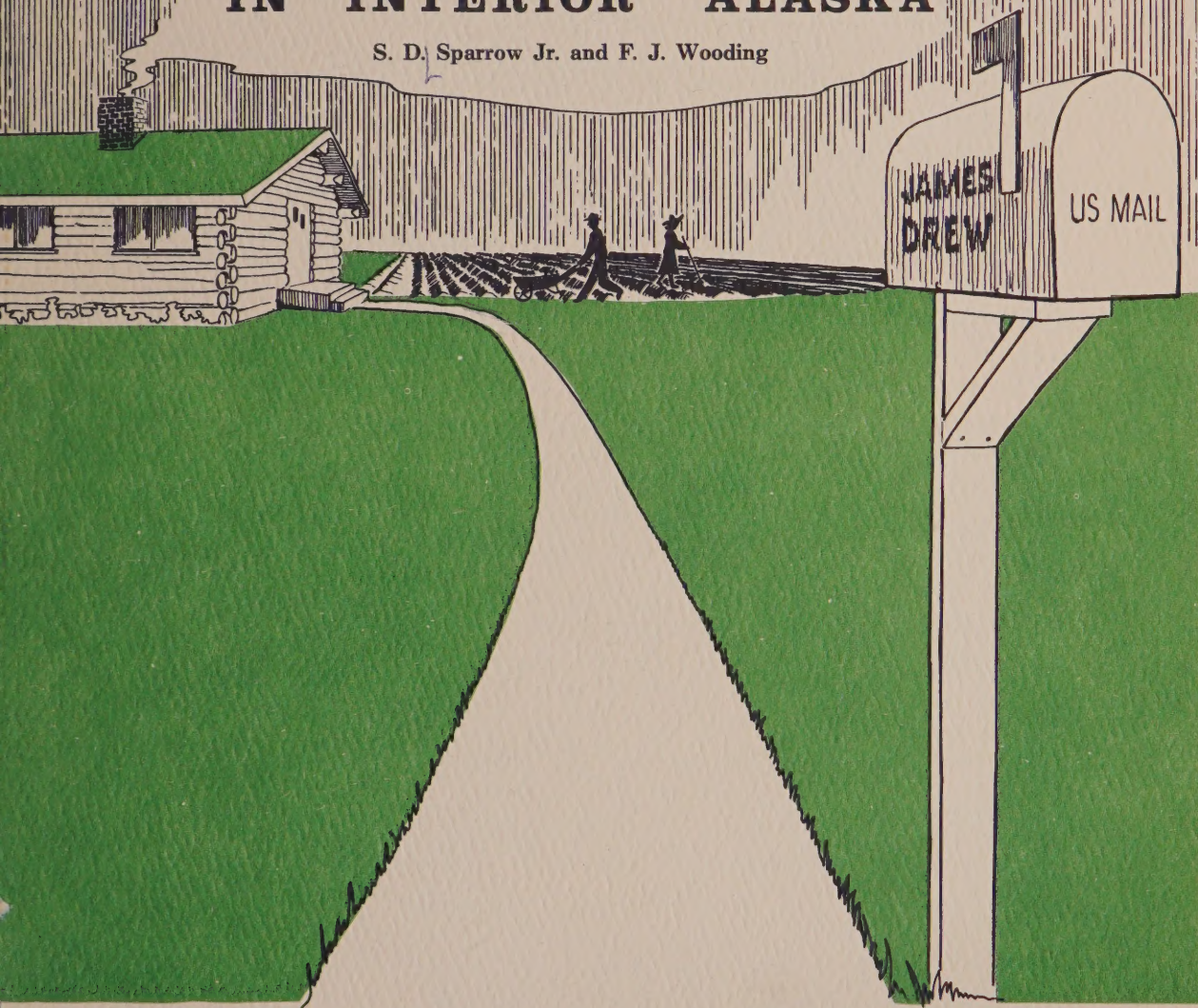


ESTABLISHING A LAWN

IN INTERIOR ALASKA

S. D. Sparrow Jr. and F. J. Wooding



AGRICULTURAL EXPERIMENT STATION

University of Alaska
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Lawns are often the most neglected part of homes in Interior Alaska. This is probably because many people feel that turf grasses will not do well in Alaska's harsh climate and are not worth the trouble for the short period of the year that they can be enjoyed. However, a well-kept lawn not only improves the looks of a home and increases the value of the property, it also provides a place for outdoor recreation that is relatively free of mud and dust. Through use of adapted grass varieties and a few good management practices, lawns can be established that survive the long Alaskan winters and provide a healthy, eye-appealing turf which stays green for about four months of the year.

Soil and Seedbed Preparation

After selection of the site, the first step in preparing a lawn is grading. Proper grading spreads out the high spots and fills in the low spots, resulting in the proper contour. This is done to improve drainage, make mowing easier, and enhance the appearance of the lawn. In low-lying, swampy areas, it is often necessary to haul in soil to improve drainage. There should be enough slope in the lawn to allow water to drain readily, but not so rapidly as to cause erosion. A slope of 2 inches per 10 feet is usually adequate. Slopes exceeding 20

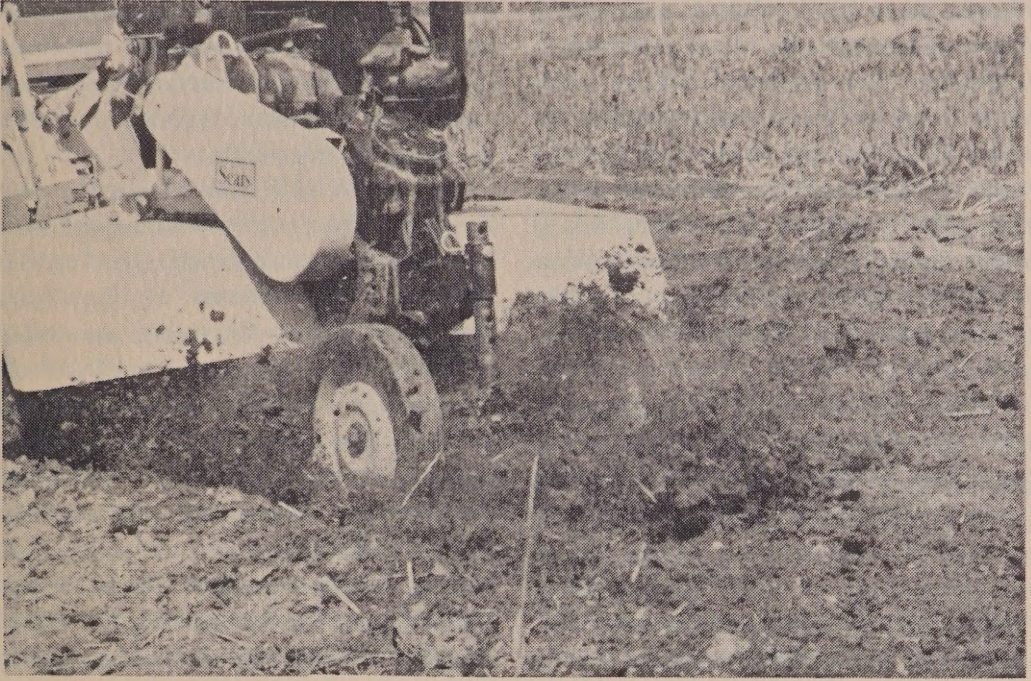
percent should be avoided when possible, as steep slopes usually contain little soil moisture, making turf difficult to establish. Erosion can also be a problem on such slopes. Lawns should slope away from buildings.

Prior to grading, topsoil should be removed and saved to be replaced over the subsoil. In instances where the topsoil is lost or is thin, the soil should be amended with organic materials to improve aeration and drainage. Materials which are good for this purpose are peat, compost, or partially decayed straw or manure. Enough material should be applied to cover the soil surface with 1 to 4 inches of material. The organic material should then be worked into and well mixed with the soil to a depth of 6 inches.

The seedbed is made ready for fertilization and seeding by rototilling, disking, or otherwise tilling the soil until it is well broken and can be worked readily and the weeds are killed. A hand rake, drag, or spike-toothed harrow can then be used to level small pockets or high spots.

Lime and Fertilizer

Soils should be tested prior to seeding in order to determine fertilizer and lime requirements. Soil samples should be taken to a depth of 6 inches from several locations in the lawn. The samples



The lawnbed soil should be tilled until it is well broken, can be worked readily, and all weeds are killed.



After rototilling, small pockets must be leveled with a hand rake, a drag, or a spike-toothed harrow.

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should then be combined and mixed thoroughly and sent to a soil-testing laboratory for analysis. (Check with your cooperative extension agent for more details on soil testing.) If the test results report that the soil is acid (lower than pH 6.0 for Kentucky bluegrass or lower than pH 5.6 for red fescue), lime should be applied at rates recommended in the soil test results and recommendations.

Interior Alaska soils are generally low in nitrogen, phosphorus, and potassium. A complete fertilizer such as 10-20-20 should be added prior to any seeding. If a soil test is not available, 10 to 15 pounds of 10-20-20 per 1,000 square feet is usually adequate. Fertilizer and lime should be spread evenly over the surface of the seedbed and incorporated into the soil with a rototiller, rake, or small harrow.

Kinds of Grass to Use

Because of Alaska's unique growing conditions as compared with the other states, turfgrass varieties must be chosen carefully. Alaska's winters are long and heavy snow usually accumulates except in wind-blown areas. Snow-mold¹ can be a problem as it can virtually wipe out turf or leave it pock-marked with unsightly bare spots. Further, many grasses are poorly adapted to the long winters and are winter-killed. Therefore, it is important to use varieties of grass which are snow-mold resistant and which are winter hardy.

Alaska summers are short, thus a turf that greens up early is desirable. Early-green varieties should be chosen. June and early July are usually very dry in Interior Alaska, so if it will not be possible to irrigate regularly, drought-

resistant varieties should be used. Other factors to consider are shade tolerance and color. Color is a matter of personal preference, but most individuals prefer the darker green colors.

Several varieties of Kentucky bluegrass (*Poa pratensis*) and red fescue (*Festuca rubra*) do well in Interior Alaska, and mixtures of Kentucky bluegrass and red fescue are often desirable. Red fescues are generally more shade tolerant, do better in acid soil, and do not require fertility levels as high as those required for Kentucky bluegrass. Kentucky bluegrass generally forms a more attractive turf and most varieties green up earlier than red fescues. Environmental conditions may vary within a lawn so that in one area one species may do well whereas, in other areas, the other species may thrive. Also, red fescues form a good turf more rapidly but are not so aggressive as to crowd out the slower Kentucky bluegrass.

Where one grass species alone is used, a blend of two or three varieties is recommended. Pure stands of a particular variety may produce a more uniform and attractive turf, but a blend will provide greater assurance of a long-lasting lawn. Different varieties are resistant to different diseases and stress conditions, thus a blend incorporates the desirable characteristics of several varieties.

Kentucky bluegrass varieties which have performed well in Interior Alaska are: Adelphi, Baron, Fancy, Fylking, Merion, Newport (C-1), Nugget, Park and Troy. (See table, page 6.) All of these varieties will survive the winter if properly managed. Adelphi and Merion are more susceptible to snow-mold than

¹Snow-molds are white cottony fungi which appear on turf during spring breakup. They are unsightly and can cause considerable damage or even death to turf.

are the other varieties. Baron is susceptible to mildew, especially during prolonged midsummer wet periods. Mildew makes a lawn less attractive, but does not usually severely injure the grass. Baron, Fancy, and Pennstar are usually the earliest to green up in the spring. Adelphi, Nugget, Pennstar, and Troy appear to be more drought resistant than the other varieties. Baron, Merion, Newport, and Nugget are darkest green in color.

Kentucky bluegrass seed labeled "common" is frequently found in the market place. Common is not considered a variety, but is a composite of many types which originate from natural stands. If the variety of Kentucky bluegrass is not stated on the label, it can be assumed to be common. Common does well in Alaska and is usually sold at a lower price. If common is planted, it should be northern-grown seed.

Of the red fescues, Arctared is superior to the other varieties. It has good winter survival, is fairly snow-mold resistant, greens up early in the spring, and is drought resistant. Pennlawn is a good second choice, followed by Illahee or common. Pennlawn and Illahee are more susceptible to snow-mold than Arctared, but usually recover well from snow-mold injury. They green up slower in the spring than does Arctared. Boreal performs well in areas where little or no snow accumulates, but is highly susceptible to snow-mold under snow cover. Boreal is very slow to green up in the spring.

Perennial ryegrass (*Lolium perenne*) is good for areas such as steep slopes where a very quick sod is necessary. Because of the poor winter survivability of ryegrass, mixtures with Kentucky bluegrass or red fescue are preferable to pure ryegrass turf.

Bentgrasses (*Agrostis* sp) have high maintenance requirements and are very

susceptible to winter-kill and snow-mold in Interior Alaska. Bentgrasses are not recommended for Alaskan lawns. Roughstalk bluegrass (*Poa trivialis*) is shade tolerant, but has light green color which does not blend well with other grasses and has poor winter survivability. Tall fescues (*Festuca arundinacea*) will seldom survive Alaskan winters. Fairway wheat-grass (*Agropyron cristatum*), because of its bunch-type growth, is not usually used for lawns. Because of its drought resistance it is used in low maintenance turf areas where irrigation is not available.

Time of Seeding

Lawns can be planted anytime after spring break-up until about August 1. Early plantings (mid-May to late June) are sometimes unsuccessful because of weed competition and droughty conditions. Plantings between July 1 and August 1 usually receive more rainfall,

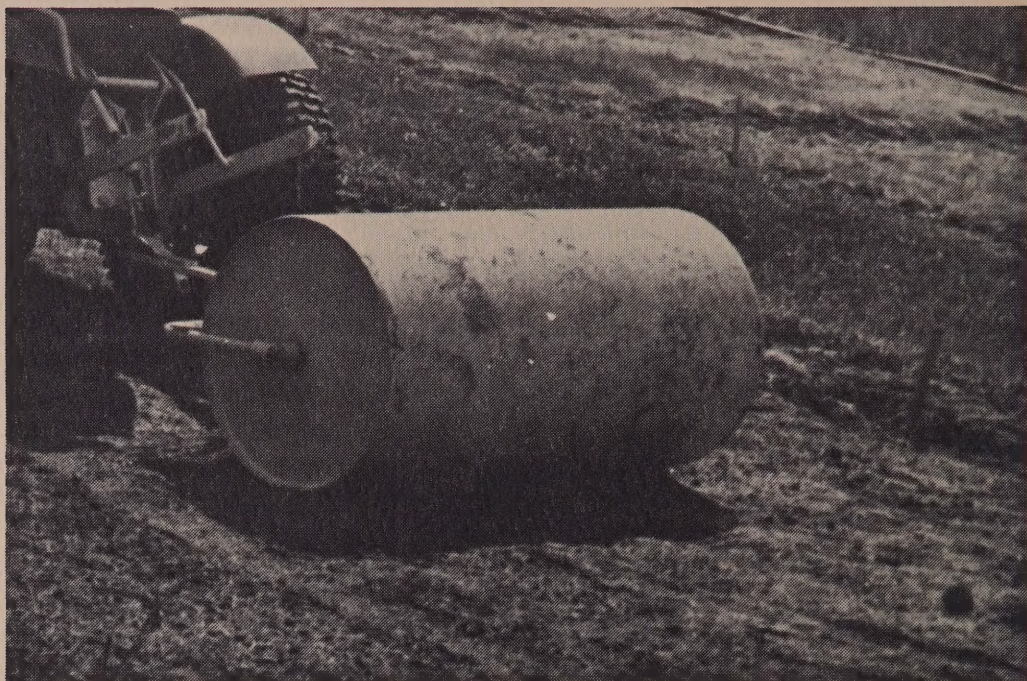


Seed can be sown with a hand-held broadcast seeder or with a combination fertilizer/seeder which may be pushed along.

Common name <i>Scientific name</i> Variety	Establishment Rate			Shade of Green			Winter- Hardiness		
	Fast	Med	Slow	Dark	Med	Light	Good	Med	Poor
Kentucky bluegrass									
<i>Poa pratensis</i>									
Adelphi			•	•			•		
Baron		•		•				•	
Common			•			•	•		
Fancy			•		•			•	
Fylking			•	•				•	
Merion			•	•			•		
Newport or C-1			•	•				•	
Nugget			•	•			•		
Park		•		•			•		
Pennstar		•		•			•		
Troy			•	•				•	
Roughstalk bluegrass									
<i>Poa trivialis</i>			•			•			•
Red Fescue									
<i>Festuca rubra</i>									
Arctared	•			•			•		
Boreal	•			•			•		
Common		•			•			•	
Illahee		•			•			•	
Pennlawn		•		•				•	
Chewings fescue									
<i>Festuca rubra</i> var. <i>Commutata</i>	•				•			•	
Perrenial ryegrass									
<i>Lolium perenne</i>									
NK 200	• (very fast)				•				•
Pennifine	• (very fast)				•				•
Annual ryegrass									
<i>Lolium multiflorum</i>	• (very fast)					•			•
Fairway wheatgrass									
<i>Agropyron cristatum</i>	•					•	•		

s of Turfgrass

[illegible]



After sowing, the lawn surface should be rolled or packed in order to retain moisture and provide better contact between seed and soil.

have less severe weed problems, and usually result in a more uniform stand.

Seeding Rates

Seeding rate depends on the kind of grass to be used. It is important to use high enough rates to ensure an even, well-developed stand before winter. Seed is a small proportion of the total cost of establishing a lawn and should not be used sparingly. Excessively high seeding rates should be avoided, however, as there will be severe competition between plants, possibly resulting in lower winter hardiness.

Pure stands of Kentucky bluegrass should be seeded at the rate of 2.5 to 3.0 pounds per 1,000 square feet. Pure stands of red fescue require a seeding rate of 3.5 to 4.0 pounds per 1,000 square feet. Mixtures of Kentucky bluegrass (40-60% red fescue seed by weight) should be seeded at rates of 3.5 to 4.0 pounds per 1,000 square feet. Mixtures with ryegrass should contain no

more than 25% ryegrass seed by weight. Ryegrass seed germinates rapidly and the young plants are strong competitors. A mixture containing more than 25% ryegrass will not likely be successful as the ryegrass will dominate. Mixtures containing ryegrass should be seeded at a rate of 3.5 to 4.0 pounds per 1,000 square feet.

Methods of Seeding

To obtain a uniform stand, seed should be broadcast on the seedbed surface as evenly as possible. Seed can be applied by hand if care is taken, but mechanical seeders result in a more even distribution. For hand seeding, it is best to divide the seed into 2 equal parts and sow in a criss-cross pattern, going over the entire area twice. Mixing seed with sand at a ratio of 1:1 will give a more uniform distribution.

After sowing, lightly work the seed into the soil with a rake or small garden harrow. Seed should not be covered with

more than ¼ inch of soil. The area should then be rolled or otherwise packed to help retain soil moisture and provide good contact between seed and soil.

Watering

To ensure quick and even germination of grass seeds, the soil should be kept moist at all times. During dry periods, this will require watering once or more daily. Misting hoses are generally better for watering newly seeded lawns than sprinklers because they provide a slow, more even, soaking thereby avoiding crust formation and washing of seeds downslope.

Mulching and Turf Establishment in Problem Areas

After completion of the seeding operation, a thin layer of mulch can be spread over the seedbed surface. Although not a necessity, mulching can be a very beneficial practice for lawn establishment. Mulches improve seed germination and uniformity of stand by maintaining a moist environment around the seed and preventing displacement of the seed by wind or water.

For level or gently sloping areas, a mulch of 100 pounds of straw or peat per 1,000 square feet is usually adequate. To establish turfgrass on steep slopes such as might be encountered on the sides of drainage ditches or road-cuts, additional materials are needed to protect the seedbed from erosion. Woven net mulches are most commonly used for this purpose. Jute netting (1-inch mesh), cheesecloth, and burlap are examples of netting materials that can be used. They are positioned on top of the straw or peat mulch and held in place with staples (U-shaped pins) or stakes. Woven net

mulches should be removed within a few days after seeding emergence to avoid injury to the seedlings from shading.

A cover of clear polyethylene film (4-6 mil thick) can be used as an alternative to woven net mulches. The seedbed should be thoroughly watered prior to laying clear polyethylene. The polyethylene sheets can be secured by use of staples or spiked wooden lath. If staples are used it may be necessary to reinforce the polyethylene with strips of tape along the edges to prevent tearing. The staples are then inserted through both tape and polyethylene. Once the polyethylene is secured in place, *no watering* is required until after its removal. The polyethylene should be removed as soon as the seedlings are emerged. At this time watering is commenced.

Use of clear polyethylene film involves some risk of injury to seedlings. Temperatures beneath clear polyethylene can be much higher than air temperatures during the daylight hours. If air temperatures are unusually high, temperatures beneath the polyethylene may rise enough to kill young grass seedlings. In the Fairbanks area, clear polyethylene has been used in tests in which air temperatures reached 82° F without permanent adverse effects to seedlings.

A "nurse", or protective crop of annual ryegrass offers an additional choice for stabilizing seedbeds on steep slopes. Because annual ryegrass requires only about one week for germination, its rapid early growth provides a means for achieving a quick vegetative cover which minimizes erosion. Annual ryegrass is extremely competitive with other grasses. If it is to be included as a component of a turfgrass mixture, it should not be seeded at rates exceeding 0.75 pounds per 1,000 square feet.

Care After Germination

Young grass plants should be well supplied with water to ensure seedling vigor and survival until the turf is established. Approximately 30 days after germination, the lawn should be fertilized with ammonium nitrate at the rate of 2.0 to 2.5 pounds per 1,000 square feet. (Do not apply additional fertilizer if grass was planted after July 15.) The grass should be watered soon after fertilization to prevent burning. Mowing should begin when the seedlings reach a height of about 3 inches.

Maintenance After Establishment

Lawns should be watered regularly during the dry part of summer (twice a week if the weather is hot). Enough water should be supplied to wet the soil to a depth of 2 inches. A few good soakings are much better than frequent irrigations which only wet the surface.

Fertilization is important if a lawn is to remain healthy. The single most important nutrient for grasses is nitrogen. Nitrogen-deficient turf appears pale or yellowish green. A complete fertilizer (such as 10-20-20 at a rate of 6 to 7 pounds per 1,000 square feet) should be applied as soon as the weather warms in the spring and the grass begins growing. Nitrogen in a readily available form such as ammonium nitrate (2 pounds per 1,000 square feet) or urea (1.5 pounds per 1,000 square feet) should be applied every 30 days until early August. Fertilizer should not be applied in late fall as this will result in tender young growth going into winter, thus increasing susceptibility to snowmold the following spring, as younger growth is more susceptible than established grass. Several slow-release nitrogen fertilizers are on the market. These are applied in the spring and only one application is needed. Recom-

mended rates are usually printed on the container label.

It is important to the establishment and maintenance of a healthy lawn that grass be mowed when it is about 1 inch above the mowing height. Grass that is not mowed short enough or frequently enough is more susceptible to disease. A mowing height of 2 to 3 inches is recommended. Cutting heights of less than 2 inches result in lowered drought resistance and winter hardiness. Mowing may be required once a week or more during the summer months when the grass is growing fast.

Weeds can be a very frustrating problem in a lawn. Particularly troublesome weeds in lawns are quackgrass and dandelions. Many broad-leaved weeds such as a lambsquarter and fireweed can usually be controlled by mowing on a regular basis. Herbicides can also be used but it should be kept in mind that most herbicides are harmful to young grass plants and should not be applied to a newly established lawn until 5 weeks after seeds germinate. Herbicides will also kill or injure many garden vegetables, and ornamental flowers, shrubs, and trees. Care must be taken to prevent the herbicides from coming into contact with these plants. Do not apply on windy days and use the least volatile forms available.

Herbicides such as silvex, MCPA, or 2,4-D will control most broadleaved weeds. Two applications are sometimes needed. Dalapon is fairly effective as a control of quackgrass, brome grass, and other weedy grasses when used as a spot treatment. This herbicide must be used with great care as it will also injure or kill desirable grasses and ornamentals, MCPA or 2,4-D herbicides are used to control dandelions. To be effective, the dandelion plants must be

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